

# Material Safety Data Sheet

Aluminium chloride, anhydrous



## 1. Product and company identification

<b>Product name</b>	: Aluminium chloride, anhydrous
<b>Material uses</b>	: Various.
<b>Supplier/Manufacturer</b>	: Gulbrandsen Chemicals Inc. 183 Gulbrandsen Road Orangeburg, SC 29115 1-803-531-2413
<b>MSDS authored by</b>	: KMK Regulatory Services Inc.
<b>In case of emergency</b>	: CHEMTREC, U.S. : 1-800-424-9300    International: +1-703-527-3887
<b>Product type</b>	: Powder.

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Solid. [Crystalline solid./ Powder.]
<b>Color</b>	: White to gray or yellow.
<b>Odor</b>	: Sharp, Pungent, Acidic.
<b>Signal word</b>	: DANGER!
<b>Hazard statements</b>	: CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. CAN CAUSE TARGET ORGAN DAMAGE.
<b>Precautionary measures</b>	: Do not breathe dust. Use only with adequate ventilation. Do not get in eyes. Do not get on skin. Do not eat, drink or smoke when using this product. Keep container tightly closed. Wash thoroughly after handling.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Routes of entry</b>	: Dermal contact. Eye contact. Inhalation. Ingestion.

### Potential acute health effects

<b>Inhalation</b>	: Corrosive to the respiratory system.
<b>Ingestion</b>	: May cause burns to mouth, throat and stomach.
<b>Skin</b>	: Corrosive to the skin. Causes burns.
<b>Eyes</b>	: Corrosive to eyes. Causes burns.

### Potential chronic health effects

<b>Chronic effects</b>	: Can cause target organ damage.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.
<b>Target organs</b>	: Causes damage to the following organs: mucous membranes, upper respiratory tract, skin, eyes, eye, lens or cornea.

### Over-exposure signs/symptoms

<b>Inhalation</b>	: Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Ingestion</b>	: Adverse symptoms may include the following: stomach pains

## 2. Hazards identification

- Skin** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Eyes** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

## 3. Composition/information on ingredients

### United States

Name	CAS number	%
Aluminium chloride, anhydrous	7446-70-0	60 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 4. First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
- Protection of first-aiders** : If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.

### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : Do not use water to extinguish surrounding fire a violent exothermic reaction yielding corrosive hydrogen chloride gas can result.
- Hazardous decomposition products** : Decomposition products may include the following materials:  
halogenated compounds
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

- Personal precautions** : Do not breathe dust. Provide adequate ventilation. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods for cleaning up

- Spill** : Stop leak if without risk. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

### United States

Ingredient	Exposure limits
Aluminium chloride, anhydrous	<b>NIOSH REL (United States, 6/2009).</b> TWA: 2 mg/m <sup>3</sup> , (as Al) 10 hour(s). <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 2 mg/m <sup>3</sup> , (as Al) 8 hour(s).

- Recommended monitoring procedures** : Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
- Personal protection**
- Respiratory** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Ensure an MSHA/NIOSH-approved respirator or equivalent is used.
- Hands** : >8 hours (breakthrough time): Disposable vinyl gloves.
- Eyes** : Not required under normal conditions of use. Safety eyewear should be used when there is a likelihood of exposure. Recommended: Splash goggles.
- Skin** : Recommended: Lab coat.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## 9. Physical and chemical properties

<b>Physical state</b>	: Solid. [Crystalline solid./ Powder.]
<b>Color</b>	: White to gray or yellow.
<b>Odor</b>	: Sharp, Pungent, Acidic.
<b>Molecular weight</b>	: 133.33 g/mole
<b>Molecular formula</b>	: $\text{AlCl}_3$
<b>pH</b>	: Acidic.
<b>Boiling/condensation point</b>	: 192.5°C (378.5°F)
<b>Relative density</b>	: 2.44 (25C).
<b>Vapor pressure</b>	: 0.13 kPa (1 mm Hg)
<b>Solubility</b>	: 70g/100 mL.

## 10. Stability and reactivity

<b>Chemical stability</b>	: Normally stable under conditions of dry air and light. Chloride, Anhydrous is deliquescent (reacts with moisture in air). Prolonged storage may result in spontaneous decomposition and possible explosion upon opening container.
<b>Conditions to avoid</b>	: No specific data.
<b>Incompatible materials</b>	: Reactive with oxidizing agents, alkali metals, nitrobenzene, nitromethane, water and polymerizable materials.
<b>Hazardous decomposition products</b>	: Decomposition products may include the following materials: halogenated compounds
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

<b>Acute toxicity</b>	: No specific data.
-----------------------	---------------------

Product/ingredient name	Result	Species	Dose	Exposure
Aluminium chloride, anhydrous	LD50 Dermal LD50 Oral	Rabbit Rat	>2 g/kg 3450 mg/kg	- -

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Aluminium chloride, anhydrous	Skin - Severe irritant	Mouse	-	-	-
	Skin - Severe irritant	Pig	-	-	-
	Skin - Severe irritant	Rabbit	-	-	-

<b>IDLH</b>	: Not available.
-------------	------------------

<b>Synergistic products</b>	: Not available.
-----------------------------	------------------

## 12. Ecological information

<b>Ecotoxicity</b>	: No known significant effects or critical hazards.
--------------------	---

<b>Other adverse effects</b>	: No known significant effects or critical hazards.
------------------------------	---

## 13. Disposal considerations




<b>Waste disposal</b>	: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
-----------------------	---

## 13. Disposal considerations

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
<b>DOT Classification</b>	UN1726	ALUMINUM CHLORIDE, ANHYDROUS	8	II		<b>Limited quantity</b> Yes. <b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 15 kg <b>Cargo aircraft</b> Quantity limitation: 50 kg <b>Special provisions</b> IB8, IP2, IP4
<b>IMDG Class</b>	UN1726	ALUMINUM CHLORIDE, ANHYDROUS	8	II		-
<b>IATA-DGR Class</b>	UN1726	ALUMINIUM CHLORIDE, ANHYDROUS	8	II		<b>Passenger and Cargo Aircraft</b> Quantity limitation: 15 kg <b>Cargo Aircraft Only</b> Quantity limitation: 50 kg <b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 5 kg

PG\* : Packing group

Exemption to the above classification may apply.

**AERG** : 137

## 15. Regulatory information

**HCS Classification** : Corrosive material  
Target organ effects

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: This material is listed or exempted.  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: Aluminium chloride, anhydrous  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Aluminium chloride, anhydrous: reactive, Immediate (acute) health hazard, Delayed (chronic) health hazard  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.  
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

## 15. Regulatory information

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### State regulations

**Massachusetts** : This material is listed.

**New York** : This material is not listed.

**New Jersey** : This material is listed.

**Pennsylvania** : This material is listed.

### California Prop. 65

No products were found.

**Canada inventory** : This material is listed or exempted.

### International regulations

**International lists** : **Australia inventory (AICS)**: This material is listed or exempted.  
**China inventory (IECSC)**: This material is listed or exempted.  
**Japan inventory**: This material is listed or exempted.  
**Korea inventory**: This material is listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC)**: This material is listed or exempted.  
**Philippines inventory (PICCS)**: This material is listed or exempted.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## 16. Other information

**Label requirements** : CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. CAN CAUSE TARGET ORGAN DAMAGE.

**Hazardous Material Information System (U.S.A.)** : **Health** : 3 \* **Flammability** : 0 **Physical hazards** : 2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** : **Health** : 3 **Flammability** : 0 **Instability** : 2

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### History

**Date of issue** : 10/15/2010

**Version** : 1

## 16. Other information

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.